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SEQUENCE LISTING

<110> Government of the United States as represented by the Secretary,
Department of Health and Human Services, c/o Centers for Disease
Control and Prevention

Carlone, George M.
Ades, Edwin W.
Sampson, Jacquelyn S.
Tharpe, Jean A.
Zeiler, Joan L.
Westerink, Maria Anna J.

<120> Epitope Peptides Immunogenic Against
Streptococcus Pneumoniae

<130> 14114.0343U2

<140> 09/623,038

<141> 2000-11-27

<150> PCT/US99/04326

<151> 1999-02-26

<150> 60/076,565

<151> 1998-03-02

<160> 8

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 1330

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence; Note =
synthetic construct

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| tatcgtgctt acagctgcta gtttctttct cattagcttc tttatcgctc ccaaacaacg | 120 |
| atatttgaaa ctgaaaaata aacatttggt aaaataaggg gcaaagccct aataaattgg | 180 |
| aggatcta atg aaa aaa tta ggt aca tta ctc gtt ctc ttt ctt tct gca | 230 |
| Met Lys Lys Leu Gly Thr Leu Leu Val Leu Phe Leu Ser Ala | |
| 1 5 10 | |

| | |
|---|-----|
| atc att ctt gta gca tgt gct agc gga aaa aaa gat aca act tct ggt | 278 |
| Ile Ile Leu Val Ala Cys Ala Ser Gly Lys Lys Asp Thr Thr Ser Gly | |
| 15 20 25 30 | |

caa aaa cta aaa gtt gtt gct aca aac tca atc atc gct gat att act 326
 Gln Lys Leu Lys Val Val Ala Thr Asn Ser Ile Ile Ala Asp Ile Thr
 35 40 45

aaa aat att gct ggt gac aaa att gac ctt cat agt atc gtt ccg att 374
 Lys Asn Ile Ala Gly Asp Lys Ile Asp Leu His Ser Ile Val Pro Ile
 50 55 60

ggg caa gac cca cac gaa tac gaa cca ctt cct gaa gac gtt aag aaa 422
 Gly Gln Asp Pro His Glu Tyr Glu Pro Leu Pro Glu Asp Val Lys Lys
 65 70 75

act tct gag gct gat ttg att ttc tat aac ggt atc aac ctt gaa aca 470
 Thr Ser Glu Ala Asp Leu Ile Phe Tyr Asn Gly Ile Asn Leu Glu Thr
 80 85 90

ggt ggc aat gct tgg ttt aca aaa ttg gta gaa aat gcc aag aaa act 518
 Gly Gly Asn Ala Trp Phe Thr Lys Leu Val Glu Asn Ala Lys Lys Thr
 95 100 105 110

gaa aac aaa gac tac ttc gca gtc agc gac ggc gtt gat gtt atc tac 566
 Glu Asn Lys Asp Tyr Phe Ala Val Ser Asp Gly Val Asp Val Ile Tyr
 115 120 125

ctt gaa ggt caa aat gaa aaa gga aaa gaa gac cca cac gct tgg ctt 614
 Leu Glu Gly Gln Asn Glu Lys Gly Lys Glu Asp Pro His Ala Trp Leu
 130 135 140

aac ctt gaa aac ggt att att ttt gct aaa aat atc gcc aaa caa ttg 662
 Asn Leu Glu Asn Gly Ile Ile Phe Ala Lys Asn Ile Ala Lys Gln Leu
 145 150 155

agc gcc aaa gac cct aac aat aaa gaa ttc tat gaa aaa aat ctc aaa 710
 Ser Ala Lys Asp Pro Asn Asn Lys Glu Phe Tyr Glu Lys Asn Leu Lys
 160 165 170

gaa tat act gat aag tta gac aaa ctt gat aaa gaa agt aag gat aaa 758
 Glu Tyr Thr Asp Lys Leu Asp Lys Leu Asp Lys Glu Ser Lys Asp Lys
 175 180 185 190

ttt aat aag atc cct gct gaa aag aaa ctc att gta acc agc gaa gga 806
 Phe Asn Lys Ile Pro Ala Glu Lys Lys Leu Ile Val Thr Ser Glu Gly
 195 200 205

gca ttc aaa tac ttc tct aaa gcc tat ggt gtc cca agt gcc tac atc 854
 Ala Phe Lys Tyr Phe Ser Lys Ala Tyr Gly Val Pro Ser Ala Tyr Ile
 210 215 220

tgg gaa atc aat act gaa gaa gaa gga act cct gaa caa atc aag acc 902
 Trp Glu Ile Asn Thr Glu Glu Glu Gly Thr Pro Glu Gln Ile Lys Thr
 225 230 235

ttg gtt gaa aaa ctt cgc caa aca aaa gtt cca tca ctc ttt gta gaa 950
 Leu Val Glu Lys Leu Arg Gln Thr Lys Val Pro Ser Leu Phe Val Glu
 240 245 250

tca agt gtg gat gac cgt cca atg aaa act gtt tct caa gac aca aac 998
 Ser Ser Val Asp Asp Arg Pro Met Lys Thr Val Ser Gln Asp Thr Asn
 255 260 265 270

atc cca atc tac gca caa atc ttt act gac tct atc gca gaa caa ggt 1046
 Ile Pro Ile Tyr Ala Gln Ile Phe Thr Asp Ser Ile Ala Glu Gln Gly
 275 280 285

aaa gaa ggc gac agc tac tac agc atg atg aaa tac aac ctt gac aag 1094
 Lys Glu Gly Asp Ser Tyr Tyr Ser Met Met Lys Tyr Asn Leu Asp Lys
 290 295 300

att gct gaa gga ttg gca aaa taagcctctg aaaaacgtca ttctcatgtg 1145
 Ile Ala Glu Gly Leu Ala Lys
 305

agctggcggtt ttttctatgc ccacatttcc ggtcaaatca ttggaaaatt ctgactgttt 1205
 cagataacaat ggaagaaaaa agattggagt atcctatgggt aacttttctc ggaaatcctg 1265
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 caaca 1330

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 <213> Artificial Sequence

<220>
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 20 25 30
 Leu Lys Val Val Ala Thr Asn Ser Ile Ile Ala Asp Ile Thr Lys Asn
 35 40 45
 Ile Ala Gly Asp Lys Ile Asp Leu His Ser Ile Val Pro Ile Gly Gln
 50 55 60
 Asp Pro His Glu Tyr Glu Pro Leu Pro Glu Asp Val Lys Lys Thr Ser
 65 70 75 80
 Glu Ala Asp Leu Ile Phe Tyr Asn Gly Ile Asn Leu Glu Thr Gly Gly
 85 90 95
 Asn Ala Trp Phe Thr Lys Leu Val Glu Asn Ala Lys Lys Thr Glu Asn
 100 105 110
 Lys Asp Tyr Phe Ala Val Ser Asp Gly Val Asp Val Ile Tyr Leu Glu
 115 120 125
 Gly Gln Asn Glu Lys Gly Lys Glu Asp Pro His Ala Trp Leu Asn Leu
 130 135 140
 Glu Asn Gly Ile Ile Phe Ala Lys Asn Ile Ala Lys Gln Leu Ser Ala
 145 150 155 160
 Lys Asp Pro Asn Asn Lys Glu Phe Tyr Glu Lys Asn Leu Lys Glu Tyr
 165 170 175

Thr Asp Lys Leu Asp Lys Leu Asp Lys Glu Ser Lys Asp Lys Phe Asn
 180 185 190
 Lys Ile Pro Ala Glu Lys Lys Leu Ile Val Thr Ser Glu Gly Ala Phe
 195 200 205
 Lys Tyr Phe Ser Lys Ala Tyr Gly Val Pro Ser Ala Tyr Ile Trp Glu
 210 215 220
 Ile Asn Thr Glu Glu Glu Gly Thr Pro Glu Gln Ile Lys Thr Leu Val
 225 230 235 240
 Glu Lys Leu Arg Gln Thr Lys Val Pro Ser Leu Phe Val Glu Ser Ser
 245 250 255
 Val Asp Asp Arg Pro Met Lys Thr Val Ser Gln Asp Thr Asn Ile Pro
 260 265 270
 Ile Tyr Ala Gln Ile Phe Thr Asp Ser Ile Ala Glu Gln Gly Lys Glu
 275 280 285
 Gly Asp Ser Tyr Tyr Ser Met Met Lys Tyr Asn Leu Asp Lys Ile Ala
 290 295 300
 Glu Gly Leu Ala Lys
 305

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 <212> DNA
 <213> Artificial Sequence

<220>
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<400> 3
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21

<210> 4
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
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<400> 4
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21

<210> 5
 <211> 15
 <212> PRT
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<220>
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 synthetic construct

<400> 5
 Thr Val Ser Arg Val Pro Trp Thr Ala Trp Ala Phe His Gly Tyr
 1 5 10 15

<210> 6
 <211> 15

<212> PRT
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<400> 6
Arg Ser Tyr Gln His Asp Leu Arg Ala Tyr Gly Phe Trp Arg Leu
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synthetic construct

<400> 7
Leu Val Arg Arg Phe Val His Arg Arg Pro His Val Glu Ser Gln
1 5 10 15

<210> 8
<211> 15
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<213> Artificial Sequence

<220>
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<400> 8
Leu Val Arg Arg Phe Val His His Arg Pro His Val Glu Ser Gln
1 5 10 15
